

APPLICATION NOTE 4444

Single-Pushbutton ON/OFF Power Control

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Abstract: This application note presents a single-pushbutton power-control circuit. The design consists of an ON/OFF control circuit comprised of a pushbutton, debouncer, and flip-flop. This circuit toggles the power output voltage by controlling an LDO. The design features the MAX6816 debouncer and MAX6484 LDO.

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The design of a handheld device today requires that you simplify and reduce the controls to a minimum. A circuit that enables a single pushbutton to turn power on and off can be very useful. **Figure 1** shows a single-pushbutton power-control circuit that consists of only a few small components, and consumes little power.

The normally open (NO) single-contact pushbutton connects to a debouncer (the [MAX6816](#), IC1) that guarantees a single-output edge (rise or fall) each time the button is pushed or released. The MAX6816's output drives the clock input of a flip-flop (IC2) wired as a T-type (toggle) flip-flop. The flip-flop output, in turn, controls a low-dropout (LDO) linear regulator (the [MAX6484](#), IC3). The MAX6484 powers a handheld gadget, which turns on or off each time that the pushbutton is operated. The same circuit can also drive other types of power regulator, if the regulator features a logic-level power-management input.

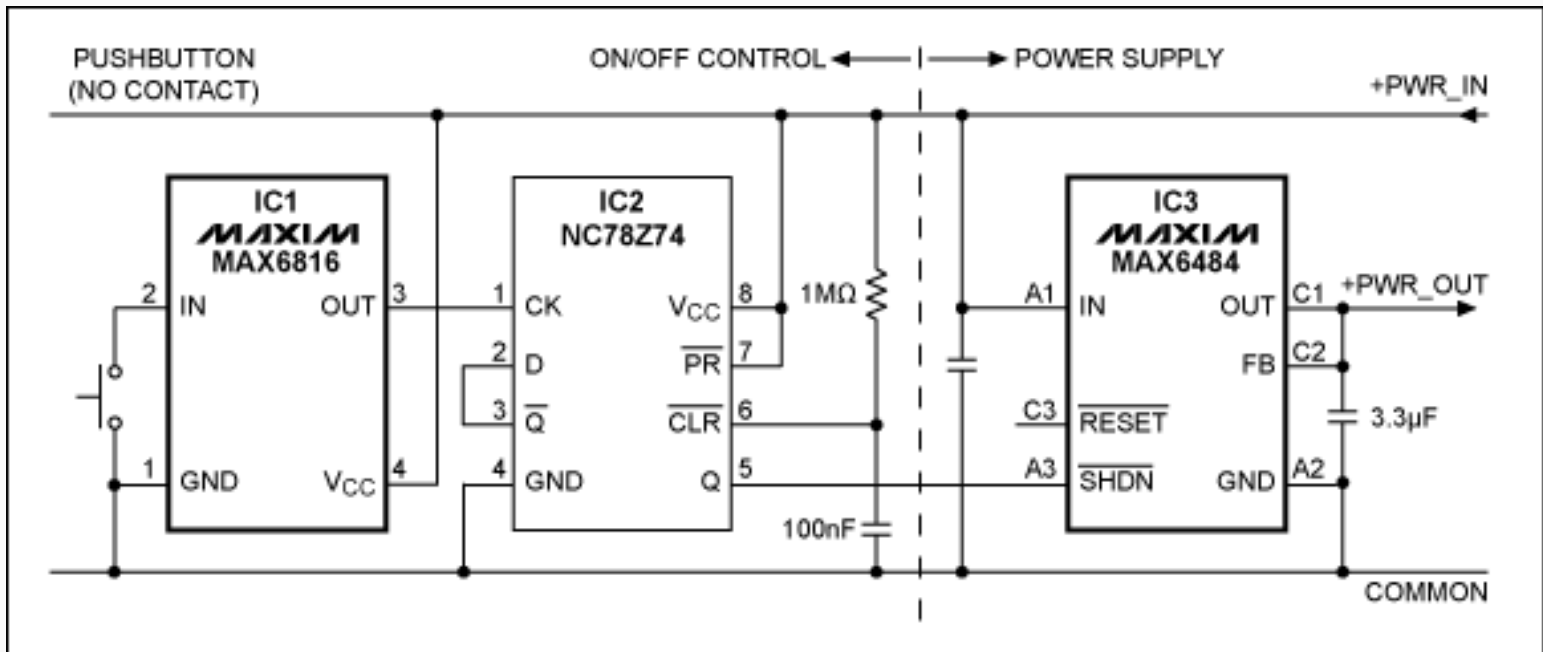


Figure 1. This normally open pushbutton connects to a debouncer, the MAX6816 (IC1) and IC2. This single-pushbutton ON/OFF control circuit lets you toggle the PWR OUT voltage by controlling the MAX6484 LDO (IC3).

The 1MΩ resistor and 100nF capacitor connected to the flip-flop's CLR input ensure that the circuit always powers up in the same state (OFF) when PWR_IN is connected first. The ON/OFF control circuit (pushbutton, debouncer, and flip-flop) operates between 2V and 5.5V; it draws about 3.5μA when the supply voltage is 3.5V. The MAX6816 is available in a 4-pin SOT143 package, IC2 in an MO-187 package, and the MAX6484 in a 6-ball UCSP™ package.

Related Parts

MAX6484: [QuickView](#) -- [Full \(PDF\) Data Sheet](#)

MAX6816: [QuickView](#) -- [Full \(PDF\) Data Sheet](#) -- [Free Samples](#)

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